TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT

TRITIUM REMOVAL FROM WASTEWATER

Identification No.: RL-MW023
Date: October 2001

Program: Mixed Waste
OPS Office/Site: Richland Operations Office/Hanford Site
PBS No.: RL-CP02
Waste Stream: 1479 – MLLW GW 100/200 Area (to ETF), 3943 – 242-A Evaporator Process Condensate
TSD Title:
Operable Unit (if applicable): N/A.
Waste Management Unit (if applicable): N/A.
Facility: 200 Area Effluent Treatment Facility (ETF)

Priority Rating:

This entry addresses the "Accelerated Cleanup: Paths to Closure (ACPC)" priority:

____ 1. Critical to the success of the ACPC.
____ 2. Provides substantial benefit to ACPC projects (e.g., moderate to high life-cycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays).
_X_ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

Need Title: Tritium Removal from Wastewater.

Need/Opportunity Category: *Technology Need* -- There is no existing or currently identified technology capable of solving the Site's problem (i.e., technology gap exists, no baseline approach has been identified).

Need Description: Waste water is currently treated at the Hanford Site and disposed of to the soil column. Some waste water contains elevated levels of tritium. The tritium decays to acceptable levels in the groundwater. It is likely that this practice will be subject to public review during the permitting and construction of the vitrification facility. A technology to remove low levels of tritium from waste water might greatly improve the public acceptance of the efforts to clean up the Hanford Site.

Schedule Requirements:

Earliest Date Required: (10/01/02)

Latest Date Required: TBD

Problem Description: A cost-effective technology does not exist for the reduction of low levels of tritium in waste water

Potential Life-Cycle Cost Savings of Need (in $000s) and Cost Savings Explanation: None at present. Treatment currently not required.

Benefit to the Project Baseline of Filling Need: Provide treatment technology in event that tritium removal becomes necessary.

Relevant PBS Milestone: WMH-00-006 M-26-05H Submit to EPA and Ecology an evaluation of development status of tritium treatment technology that would be pertinent to the cleanup and management of tritiated waste water (e.g., the 242-A Evaporator Process Condensate liquid effluent) and tritium contaminated groundwater at the Hanford Site.

Functional Performance Requirements: Reduce the concentration of tritium in a waste water stream from 2-3 million pCi/L to less than 20,000 pCi/L.

Work Breakdown Structure (WBS) No.:	***TIP No.:***
1.2.3	N/A.

***Justification For Need*:**

Technical: A cost-effective method for removing dilute amounts of tritium from water is needed.

Regulatory: N/A.

Environmental Safety & Health:

Cultural/Stakeholder Concerns: Stakeholders have recently shown increased concern with protecting the groundwater. Public sentiment may outweigh the facts that discharges are currently within allowable discharge limits and that studies have shown there is no risk to public health and safety.

Other: N/A.

Current Baseline Technology: No cost-effective technology currently exists to remove tritium from waste water streams. The ETF treatment process is not effective in removing tritium from the various waste streams it receives.

End-User: Waste Management Project.

Contractor Facility/Project Manager: Donald Flyckt, Fluor Hanford, Inc. (FH), (509) 372-3142, Fax (509) 372-2089, Don_L_Flyckt@rl.gov.

Site Technical Point-of-Contact: Dale Black, Fluor Hanford, Inc. (FH), (509) 376-8458, Fax (509) 372-1441, Dale_G_Black@rl.gov; Donald Flyckt, FH, (509) 372-3142, Fax (509) 372-2089, Don_L_Flyckt@rl.gov.

DOE End-User/Representative Point-of-Contact: Kevin Leary, DOE-RL, (509) 373-7285, Fax (509) 372-1926, Kevin_D_Leary@rl.gov.

Waste volume, gallons	1 to 4 million gallons per year
Waste form	Liquid
Waste stream I.D.	1479, 3943
Contaminants and co-contaminants	Tritium
Function of technology	To remove tritium from water
Source category	Various waste water sources